SCANDINAVIAN SCALE COMPANY

MANUAL

QHW+

Contents

1. Introduction

The QHW series of scales provides an accurate, fast and versatile series of general purpose weighing scales with counting, % weighing and check-weighing functions. There are 4 models in each series, with capacities up to 30 kg. They all have stainless steel weighing platforms on an ABS base assembly. All the keypads are sealed, color coded membrane switches and the displays are large easy to read liquid crystal type displays (LCD). The LCD's are supplied with a backlight. All units include automatic zero tracking, audible alarm for pre-set weights, automatic tare, pre-set tare and an accumulation facility that allows the count to be stored and recalled as an accumulated total.

2. Key descriptions

Zero
Set the zero point for all subsequent weighing. The display shows zero.
A secondary function is "Enter" key, when in parameters or other functions.

Tare
Tares the scale. Stores the current weight in memory as a tare value, subtracts the tare value from the weight and shows the results. This is the net weight.
Entering a value using the keypad will store that value as the tare value.
A secondary function is "increment" to increase the active digit, when in parameters or other functions.

Func
Select the functions of the scale, if the scale is weighing it will select parts counting. If not in weighing mode, it will return to the weighing.
Secondary function (**C**) is to act as a clear key when setting values for parameters or other functions.

Limit
Set the limits of check weighing. Allow settings of the low limit or the high limit or both.
Secondary function is "increment" to move the active digit to right, when in parameters or other functions.

%
Enter in to the percent weighing function. Allows the weight, unit weight, and count to be seen when parts counting.
Secondary function is "increment" to move the active digit to left, when in parameters or other functions

Print
To print the results, send data to PC or printer by using the optional RS-232 interface. Also add the values to the accumulation memory, if the accumulation function is not automatic.
Secondary function (**ESC**) is to return to normal operation when the scale is in parameter setting mode.

U
This key will select either kilograms or g for the weighing unit.

3. Specifications

QHW SERIES				
Model #	QHW+ 3	QHW+ 6	QHW+ 15	QHW+ 30
Capacity	3kg	6kg	15kg	30kg
Resolution	0.05g	0.1g	0.2g	0,5g
External counts	1:60000	1:60000	1:60000	1:60000
Tare range	-3kg	-6kg	-10kg	-30kg
Minimum weight	10g	20g	50g	100g
Linearity ±	0.2g	0.4	1g	2g
Units of Measure	kg, g, Lb., oz.			

Interface	RS-232 (Optional)
Stabilisation time	2 seconds
Operating temperature	0°C - 40°C / 32°F - 104°F
Power supply (external)	115 / 230 Vac, 50/60Hz, 10 watt
Calibration	Extern
Display	6 digits LCD digital display
Platform size	225 x 300mm / 8.9 x 11.8"
Scale size	320 x 340 x 125mm / 12.6 x 13.4 x 4.9"
Weight	3.8kg/8.4lb
Functions	Weighing, counting, % weighing, total accumulation.
Battery	Internal rechargeable battery (~70h using)
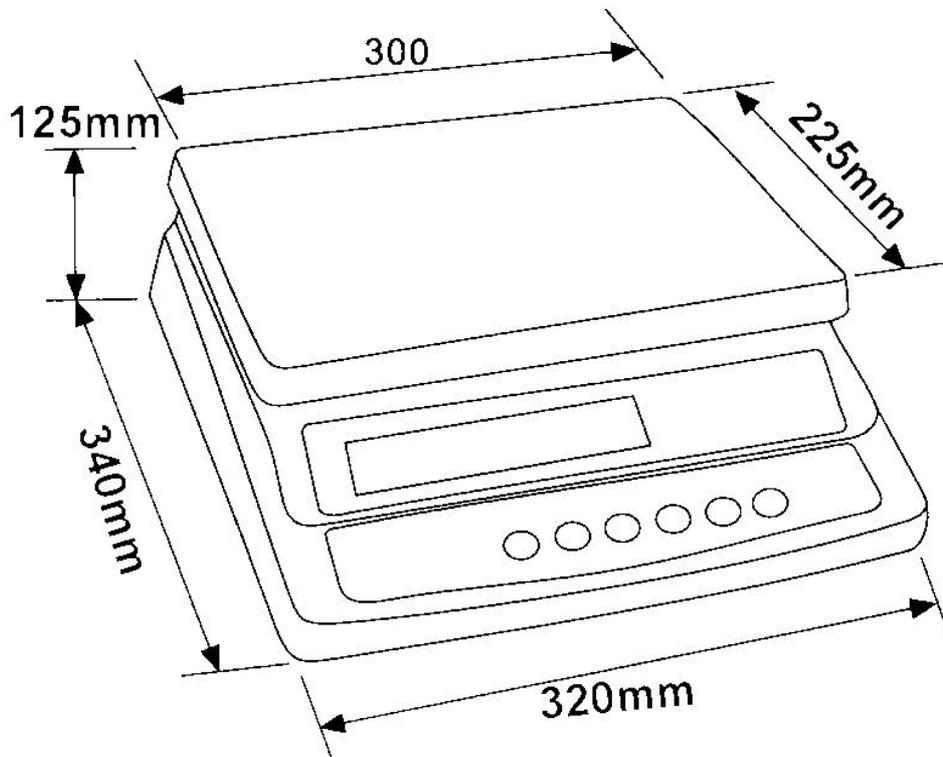
4. Displays

The LCD display will show a value and a unit to the right of the digits.
In addition there are labels for TARE, GROSS weight, ZERO and for Low battery
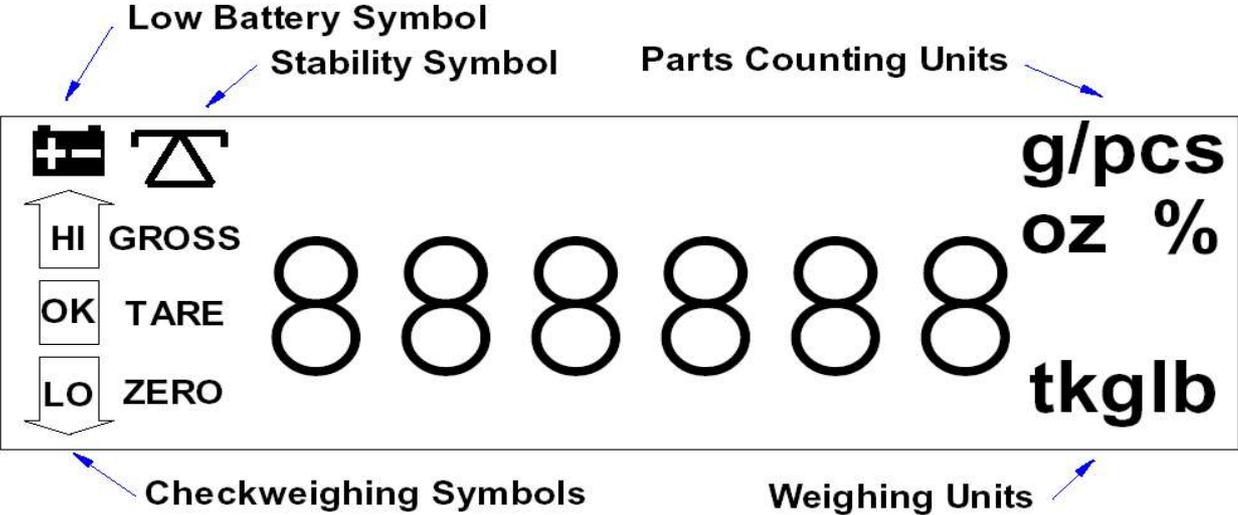
5.1 Zeroing

You can press the **ZERO/ENTER** key at any time to set the zero point from which all other weighing and counting is measured, within 4% of power up zero. This will usually only be necessary when the platform is empty. When the zero point is obtained the display will show the indicator for zero.
The scale has an automatic rezeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press the **ZERO/ENTER** key to rezero the scale if small amounts of weight are shown when the platform is empty.

5.2 Taring

Zero the scale by pressing the **ZERO/ENTER** key if necessary. The zero indicator will be on.
Place a container on the platform, a value for its weight will be displayed.
Press the **TARE** key to tare the scale. The weight that was displayed is stored as the tare value and that value is subtracted from the display, leaving zero on the display. The "TARE" indicator will be on. As product is added only the weight of the product will be shown.
When the container is removed a negative value will be shown. If the scale was tared just before removing the container this value is the gross weight of the container plus all product that was removed. The zero indicator will also be on because the platform is back to the same condition it was when the **ZERO/ENTER** key was last pressed.

5.3 Weighing a sample

To determine the weight of a sample first tare the empty container then place the sample in the container. The display will show the weight and the units of weight currently in use.

5.4 Percentweighing

The scale will allow a sample weight to be shown as 100%. Then any other weight placed on the scale will be displayed as a percentage of the original sample. For example is 350g is placed on the scale and the **%** key is pressed the display will show 100.00%.
Removing the 350g weight and putting a 300g weight on the scale the display will show 85.71% as 300g is 85.71% of 350g.
Note: the scale may jump by large numbers unexpectedly if small weights are used to set the 100% level. For example if only 23.5g is on a scale with 0.5g increments and the scale is set to 100%, the display will show 100.00%, however a small change of weight will cause the display to jump to 102.13% as one scale division (0.5g) increase to 24.0g will be equivalent to a 2.13% increase. Removing the 350g weight and putting a 300g weight on the scale the display will show 85.71% as 300g is 85.71% of 350g.
Pressing the **FUNC** key will return the scale to weighing.

5.5 Parts Counting

When the scale is showing weight, pressing the **FUNC** key will start the parts counting function. Before beginning, tare the weight of any container that will be used, leaving the empty container on the scale. Place the number of samples on the scale. The number should match the options for parts counting, 10, 20, 50, 100 or 200 pieces.
Press the **FUNC** key to begin. The scale will show "SP 10" asking for a sample size of 10 parts. Change the sample size by pressing the **TARE/↑** key. the display will cycle through the options: 10,20, 50, 100, 200 and back to 10.
Press the **ZERO/ENTER** key when the number matches the number of parts used for the sample. As more weight is added the display will show the number of parts (pcs).
Press the **%** key to display unit weight (g/pcs), Total weight (kg) or the count (pcs). Press the **FUNC** key to return to normal weighing.

5.6 Checkweighing

Check-weighing is a procedure to cause an alarm to sound when the weight on the scale meets or exceeds values stored in memory. The memory holds values for a high limit and a low limit. Either limit can be used or both can be used.
Press the **LIMIT** key. The display will show the current High Limit with the left most digit flashing and the HI symbol on to the left of the display..
To change the value shown use the **%/←** and the **LIMIT/→** to select the digit to change. Then use the **TARE/↑** key to increment the flashing digit. When the desired value is shown press the **ZERO/ENTER** key to accept the value. If you want to reset the value to zero press the **FUNC/C** key to clear the value.
After pressing the **ZERO/ENTER** key the display will then show the Low Limit, the LO symbol will be on to the left side of the display.
Enter the low limit in the same way the high limit was entered.
After pressing the **ZERO/ENTER** key the scale will return to weighing with the Check-weighing function enabled.
When a weight is placed on the scale the arrows will show if the weight is above or below the limits and the beeper will sound as described below.
BOTH LIMITS SET
The display will show OK and the beeper will sound when the weight is AHW/QHW digital weighing scales user's guide between the limits.
LOW LIMIT SET,
HIGH LIMIT is set to zero
The display will show OK and the beeper will sound when the weight is less than the Low Limit. Above the Low Limit the display will show HIGH and the beeper will be off.
HIGH LIMIT SET,
LOW LIMIT is set to zero
The display will show LOW and the beeper will be off when the weight is less than the High Limit. Above the High Limit the display will show OK and the beeper will be on.
BOTH LIMITS SET. LOW IS SET GREATER THAN HIGH
The beeper will never sound and the display will show LOW if the weight is less that the LOW limit, and HIGH if the weight is greater than the Low Limit.
NOTE: The weight must be greater than 20 scale divisions for the check weighing to operate.
To disable the Check-Weighing function enter zero into both limits by pressing the **FUNC/C** key when the current limits are shown then pressing the **ZERO/ENTER** key to store the zero values.

5.7 Accumulated Total

The scale can be set to accumulate automatically when a weight is added to he scale or manually by pressing the PRINT key. See the PARAMETERS Section for details of selecting the method. The accumulation function is only available when weighing. It is disabled during percent weighing or parts counting.

5.8 Manual Accumulation

When the scale is set to manual accumulation the weight displayed will be stored in memory when the **PRINT** key is pressed and the weight is stable.
The display will show "ACC 1" and then the total in memory for 2 seconds before returning to normal. If the optional RS-232 interface is installed the weight will be output to a printer or PC. Remove the weight, allowing the scale to return to zero and put a second weight on. Press **PRINT**, the display will show "ACC 2" and then show the new total.
Continue until all weights have been added.
To view the totals in memory press the **PRINT** key when the scale is at zero. The display will show the total number of items "ACC xx" and the total weight before returning to zero. The totals will also be printed via the RS-232 interface.
To erase the memory press **PRINT** to view the totals and then press the **FUNC/C** key to clear the memory.

5.9 Automatic Accumulation

When the scale has been set to Automatic Accumulation the value is stored in memory automatically.
Add a weight to the scale, the beeper will sound when the scale is stable to signify the value is accepted. Remove the weight.
The display will show "ACC 1" and the totals in memory when the scale returns to zero. Adding a second weight will repeat the process.
While the weight is on the scale it is permissible to press the **PRINT** key to store the value immediately. In this case the scale will not store the value when the weight is removed.
The totals can be viewed as above.
In all cases the scale must return to zero or a negative number before another sample can be added to the memory.
More product can then be added and **PRINT** pressed again. This can continue for up to 99 entries, or until the capacity weight display is exceeded.

6. Battery

The scales can be operated from the battery if desired. The battery life is approximately 100 hours.
When the battery needs charging the arrow above the low battery symbol under the weight display will turn on. The battery should be charged as soon as the arrow above the symbol is on. The scale will still operate for about 10 hours after which it will automatically switch off to protect the battery.
To charge the battery simply plug into the mains power. The scale does not need to be turned on. The battery should be charged for 12 hours for full capacity.
Just under the quantity display is an LED to indicate the status of battery charging. When the scale is plugged into the mains power the internal battery will be charged. If the LED is green the battery has a full charge. If it is Red the battery is nearly discharged and yellow indicates the battery is being charged. As the battery is used it may fail to hold a full charge. If the battery life becomes unacceptable then contact your distributor.

7. RS232

The QHW Series of scales can be ordered with an optional RS-232 output.
Specifications:
RS-232 output of weighing data
ASCII code
4800 Baud
8 data bits
No Parity
Connector: 9 pin d-subminiature socket
Pin 2 Output
Pin 3 Input, not used at this time
Pin 5 Signal Ground
Check weighing output(9 pin d-subminiature socket)
pin 1 VB
pin 4 vcc (5V)(output)
pin 5 com (gnd) public
pin 6 ok (output)
pin 7 low (output)
pin 8 hi (output)
pin 9 beep (output)
Data Format for normal weighing operations, parts counting or recalling of totals from memory will all be different. Examples follow:

Normal Output :

GS 1.234kg	GS for Gross , NT for net and a unit of weight
No.. 1	This increments every time a new value is stored
Total 1.234kg	The total value stored in memory
<lf>	Includes 2 line feeds
<lf>	

When percent weighing, the output is the weight will be show in percent only.

GS 100.00%	GS for Gross weight, NT for net weight and a unit of weight
<lf>	Includes 2 line feeds
<lf>	

8. Parameters

The scale has several parameters that can be set by the user. These allow the user to set the scale to:

Display the weight in other increments of weight to minimize the affects of vibration, wind or other environmental conditions.

Control the back light on the display. It may be necessary to turn the backlight off to maximize battery life.

Set the Accumulation to Automatic, manual or set the RS-232 interface to continuously print the weight.

Set whether accumulation when print

Select another weighing unit(g)

To set parameters, turn on the scale, press the **FUNC** and **PRINT** keys at the same time during the self checking.
The display will be show r 3 000.
To select the menu, press **LIMIT** key and to select the sub menu press the **TARE/↑** key. then press the **ZERO** key to confirm the selected menu.

9. Calibration

9.1 Normal calibration
To start calibration turn the scale off and then turn it back on. Press the **Tare** and % keys together during the initial counting from 9 to 0 on the display.
The display will show "unLoAd". Remove all weight from the pan and then press the **ZERO/ENTER** key to set the initial zero point.
Then use **%**, **Limi**t and **Tare** key to key in calibrate weight, press **Zero** key to sure, display shows "load", put this weight on platter, after stable indicator on, press **Zero** key to sure. After selfchecking again, AHW is ready for you.

Calibrationweights

QHW serien				
Model #	QHW 3+	QHW 6+	QHW 15+	QHW 30+
Vikt 1	Zero	Zero	Zero	Zero
Vikt 2	1000g	2kg	5kg	10kg
Vikt 3	3000g	6kg	15kg	30kg

9.2 Internal counts

Press the **ZERO** and **%** keys together during the initial counting from 9 to 0 on the display to view the internal counts.

10. Errorcodes

Error message	Desciption	Solution
------	Maximum load exceeded	Unload or reduce weight
Err 1	Incorrect date	Enter the date by using format "yy;mm:dd"
Err 2	Incorrect time	Enter the time by using format "hh:mm:ss"
Err 4	Zero setting error	Zero setting range exceeded due to switching on.(4%max) Make sure platform empty.
Err 5	Key board error	Check the keys and connecter.
Err 6	A/D value out of range	Make sure platform empty and check the pan is installed proper. Check the load cell connectors.
Err 9	Unstable Reading	Check any air variation, vibration, RF noise and touching some where. Check the load cell and connecters.
Err 17	Tare out of range	Remove the load and restart scale again.
--oL--	Over range	Remove the load. Recalibrate
FAILH / FAIL	Calibration Error	Recalibrate
Err P	Printer error	Check the printer and settings
BA LO / LO bA	Battery low	Recharge battery, check the voltages.